



## **NASA SBIR 2012 Phase I Solicitation**

### **A1.02 Inflight Icing Hazard Mitigation Technology**

**Lead Center: GRC**

NASA is concerned with the prevention of encounters with hazardous in-flight conditions and the mitigation of their effects when they do occur. Under this subtopic, proposals are invited that explore new and dramatically improved technologies related to inflight airframe and engine icing hazards for manned and unmanned vehicles. Technologies of interest should address the detection, measurement, and/or the mitigation of the hazards of flight into supercooled liquid water clouds and flight into regions of high ice crystal density. With these emphases in mind, products and technologies that can be made affordable and capable of retrofit into the current aviation system and aircraft, as well as for use in the future are sought.

Areas of interest include, but are not limited to:

- Non-destructive 3-D ice density measurements of ice accretions on wind tunnel wing models. NASA has a need for non-optical methods to digitize ice shapes with rough external surfaces and internal voids as can occur with accretions on highly swept wings for comparison to computational simulations. Current methods based upon scanning with line-of-sight, visible-spectrum digitization methods have been found inadequate for many of these very complex ice shapes.
- Remote and in-situ technologies that can accurately quantify the super-cooled liquid water environment in the volume surrounding an airport. Of primary interest are remote sensing technologies that can, by themselves or with other instruments, quantify the temperature, liquid water content, and cloud droplet size spectrum to allow the production of a 3-D icing hazard map of the terminal airspace. Low-cost, expendable in-situ instruments are also of interest for validating and calibrating these remotely sensed measurements.